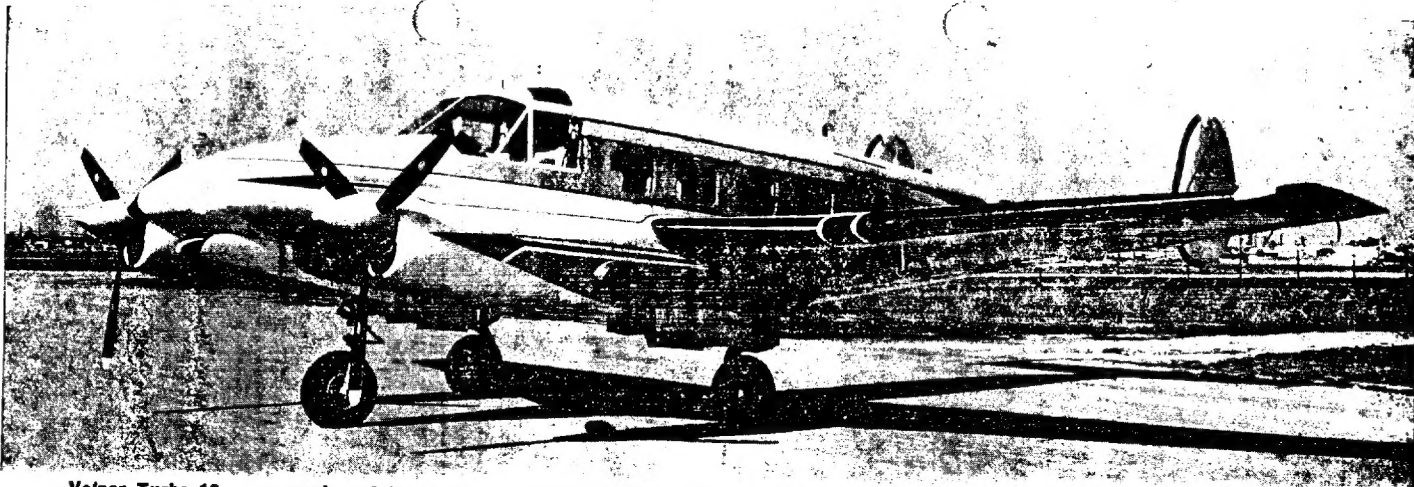


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Volpar Turbo 18, a conversion of the Beechcraft Model 18 with AiResearch TPE 331 turboprops and Volpar Mk IV tricycle landing gear

position indicator. Existing airstair doors can be retained with only minor modification.

Basically, the modification moves the main landing gear 4 ft 0 in (1.22 m) aft of the original position, attaching it to a welded tube truss that increases the torsional strength of the centre wing structure by 60% in landing configuration. The nose assembly is completely new and includes a streamlined nose fairing which adds 2 ft 2½ in (0.67 m) to the fuselage length. Space inside the fairing can be used for additional equipment, including a weather radar dish of up to 12 in (30 cm) diameter.

All three wheels are of aluminium and can be fitted with either Goodrich or Goodyear tubed or tubeless tyres, size 8-50-10, ten-ply rating. Main-wheel tyre pressure 65 lb/sq in (4.57 kg/cm²), nose-wheel tyre pressure 45 lb/sq in (3.16 kg/cm²). Shock-absorption is provided by hydraulic oleo struts of Volpar manufacture. Goodrich multiple disc brakes. All three wheels retract forward in less than eight seconds. On the ground the cabin floor is only 3 ft 6 in (1.07 m) off the ground at the door. Wheelbase is 8 ft 7 in (2.62 m). The aircraft will turn on a 4 ft (1.22 m) radius of the inside wheel and a centering device is incorporated on the shimmy damper for take-off and landing.

The current Mk IV Volpar conversion incorporates Goodrich nine-piston full-circle brakes with twice the braking energy and three times the service life of the two-piston type fitted formerly. The new brakes fit on the original gear and are obtainable from either Volpar or Goodrich.

A total of more than 400 sets of Volpar tri-gear have been delivered.

VOLPAR (BEECHCRAFT) TURBO 18

The Turbo 18 is a Beechcraft Model 18 fitted with the Volpar Mk IV tricycle landing gear described above and re-engined with two 705 ehp AiResearch TPE 331-1-101B turboprop engines, flat rated to 605 ehp. The wing planform is changed, by extending forward the entire leading-edge inboard of each engine nacelle and carrying the new leading-edge line past the nacelle, so increasing the chord and sweepback to a point some distance outboard of the nacelle. The rectangular wingtip panels of the standard Super 18 are replaced by smaller tips which decrease the wing span and maintain the normal leading-edge sweep to the tip.

Installation of TPE 331 engines and Hartzell Model HC-B3TN-5 three-blade reversible-pitch propellers reduces the empty weight, permitting an increase in fuel or payload. Internal fuel

capacity is increased by 100 US gallons (379 litres) by installing new integral tanks in the leading-edge immediately outboard of each engine nacelle. These become the main tanks, each delivering fuel directly to the adjacent engine. They increase the maximum fuel capacity to 630 US gallons (2,386 litres), with a normal capacity of 306 US gallons (1,159 litres).

Air-conditioning and heating installations are available, using engine bleed air. A large cargo door, 5 ft 2 in (1.57 m) wide, with a max height of 3 ft 7 in (1.09 m), can be provided, incorporating the existing airstair door.

The detailed description of the Turboliner (which follows), applies also to the Turbo 18, except that this latter model does not have the "stretched" fuselage.

FAA Supplemental Type Approval of the Turbo 18 was received on 17 February 1966. Two were in service with the US Public Health Service at the end of that month and conversion kits are in full production. Customers include Air Asia of Taiwan, which has been supplied with 15 kits.

DIMENSIONS, EXTERNAL:

Wing span	46 ft 0 in (14.02 m)
Length overall	37 ft 5 in (11.40 m)
Height overall	9 ft 7 in (2.92 m)
Wheelbase	8 ft 7 in (2.62 m)

DIMENSIONS, INTERNAL:

Cabin, excluding flight deck:	
Length	12 ft 8½ in (3.87 m)
Max width	4 ft 4 in (1.32 m)
Max height	5 ft 6 in (1.68 m)
Volume	260 cu ft (7.36 m³)

WEIGHTS AND LOADINGS:

Weight empty, basic	5,500 lb (2,495 kg)
Max payload	4,786 lb (2,171 kg)
Max T-O weight	10,286 lb (4,666 kg)
Max zero-fuel weight	9,000 lb (4,082 kg)
Max landing weight	9,772 lb (4,433 kg)
Max wing loading	27.51 lb/sq ft (134.3 kg/m²)
Max power loading	8.94 lb/ehp (4.05 kg/ehp)

PERFORMANCE (at max T-O weight):

Max cruising speed at 10,000 ft (3,050 m)	243 knots (280 mph; 451 km/h)
Econ cruising speed at 10,000 ft (3,050 m)	222 knots (256 mph; 412 km/h)
Stalling speed, wheels and flaps up, power off	80 knots (92 mph; 148 km/h)
Stalling speed, wheels and flaps down, power off	77 knots (88 mph; 142 km/h)
Max rate of climb at S/L	1,710 ft (521 m)/min
Service ceiling	26,000 ft (7,925 m)
Service ceiling, one engine out	

T-O run	1,665 ft (507 m)
T-O to 50 ft (15 m)	2,380 ft (725 m)
Landing from 50 ft (15 m)	2,107 ft (642 m)
Landing run with reverse thrust	870 ft (265 m)
Range with max fuel at 222 knots (256 mph; 412 km/h), 45 min reserve	1,884 nm (2,170 miles; 3,492 km)
Range with max payload, 45 min reserve	400 nm (461 miles; 741 km)

VOLPAR (BEECHCRAFT) TURBOLINER

This is a "stretched" 15-passenger version of the Volpar (Beechcraft) Turbo 18, intended for the third-level airline market. Design was started in August 1966 and construction of the prototype began in December 1966. The prototype flew for the first time on 12 April 1967 and FAA certification was granted on 29 March 1968, the Turboliner being approved for operation at a new gross weight of 11,500 lb (5,216 kg).

By the end of February 1974 a total of 24 Turboliners had been delivered and were in service with small airlines throughout the world. In March 1970 a Turboliner (N353V), on a delivery flight from Los Angeles to Singapore, set six official international speed records. It carried on board during the flight all necessary spares for one year's normal operation, together with a 400 US gallon (1,515 litre) ferry tank in the fuselage, and was in operation with a commuter airline two days after arrival in Singapore.

TYPE: Twin-turboprop light transport aircraft.

WINGS: Cantilever low-wing monoplane. Wing section NACA.63-015 at station 28.0; NACA 23014 at station 144.5; NACA 23012 at station 260.4. Dihedral 6°. Incidence 5° 20' at root, 1° at tip. Sweepback 16° 21' on inner wings, 8° 23' on outer panels. Steel truss centre-section spar; remainder of structure aluminium semi-monocoque. Plain differential ailerons and plain trailing-edge flaps of conventional aluminium construction. Trim tab in port aileron. Optional Goodrich pneumatic de-icing boots on leading-edges.

FUSELAGE: Conventional aluminium semi-monocoque structure.

TAIL UNIT: Cantilever aluminium semi-monocoque structure with twin endplate fins and rudders. Fixed-incidence tailplane. Trim tabs in rudder and elevators. Optional Goodrich pneumatic de-icing boots on leading-edges.

LANDING GEAR: Volpar electrically-retractable tricycle type. All wheels retract forward, main wheels into engine nacelles. Volpar hydraulic

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Approved For Release 2005/11/23 : CIA-RDP80B01495R001200120004-5

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